Electrical Safety and Tag-Out

Program

LG #7



Shipboard Electrical Systems

- Are ungrounded
- Ungrounded systems critical to shipboard reliability
- Risk of electrical shock higher than work ashore

Electrical Safety Elements

- Working on de-energized equipment
- Working on energized equipment
- Personal protective equipment
- Portable electrical tool issue

Electrical Safety Elements

- General precautions for portable electrical equipment
- **Training**
- Safety standards implementation



- Portable electrical equipment
 - Hand held while energized
- Mobile electrical equipment
 - Stationary while energized, not hardwired
 - Energized >50% of the time
- Stationary equipment
 - Hardwired to ship's electrical system



- Commanding Officer
 - Authorizes all work on energized equipment
- Safety Officer
 - Ensures electrical/electronic indoctrination training provided and complemental newly reporting p

- Electrical Officer/ElectronicMaintenance Officer
 - **⇒**Establish electrical tool issue room
 - Ensure all maintenance and repair conducted
 - Ensure on-board CPR instructor certified
- Supply Officer
 - Ensure all electrical tools/equipment received are turned over to electrical tool issue for inspection prior to use

- Division Officers
 - Ensure assigned personnel are trained
 - Ensure portable equipment visually inspected & safety checked quarterly
 - Ensure personal equipment authorized for shipboard use

- Division Officers
 - Ensure required personnel receive CPR training
 - Ensure items open purchased or received from Navy supply are safety checked prior to use
 - Ensure all personnel experiencing electrical shock report to medical

All Hands

- Request permission to bring aboard personal electronic equipment
 - Does not apply to battery-operated equipment
- Report unsafe material or equipment
- Report electrical shock to division officer

2. Command Tool Issue Procedures

Portable Electrical Tool Issue

- Centralized tool issue room required
- Personnel issuing tools perform visual inspection & quarterly safety testing prior to issue
- Prior to issue
 - Tool users briefed on general electrical precautions
 - Required PPE issued with tool

Portable Electrical Tool Issue

- Certain divisions/work centers may retain tools permanently
 - ⇒Will perform required checks on equipment
 - Won't issue tools to other work centers
- Unsafe tools marked "OOC" & rendered incapable of being energized
- Housekeeping items not required to be retained in tool issue

Electrical Safety Rubber

- Provide insulation between hands & equipment
- Leather outer shell used to prevent rubber from tearing
- I PMS required before every use

Electrical Safety Rubber

- DO NOT use electrical gloves to handle chemicals, solvents, or other hazardous material
 - **Degrades rubber, reduces protection**value
- DO NOT use chemical protective gloves for electrical shock protection
 - Gloves labeled on cuff saying not meant for electrical work

3. General Electrical **Safety** Precautions

General Precautions

- Obey all warning signs, tags, and read operating instructions BEFORE using equipment
- NEVER work on energized equipment without CO's approval
- NEVER remove Danger or Caution tags, or energize equipment with tags until instructions read and thoroughly understood

General Precautions

Electrical cords

- Always inspect for unsatisfactory condition(s)
- Do not join more than two 25 ft extension cords together
- Connect equipment cord to extension cord before inserting plug into receptacle
- Never pick up a tool by its cord
- Never allow cord to be a tripping hazard, or put in position of becoming frayed

Personal Electrical and Electronic Equipment

- Must be authorized and safety checked
 - Checks performed every 6 mo
- Request form must be filled the
- Some items prohibited
 - Fans, lamps, heating pads, he plates, heaters, etc.

4. Electric Shock First Aid and CPR

Rescuing Shock Victims

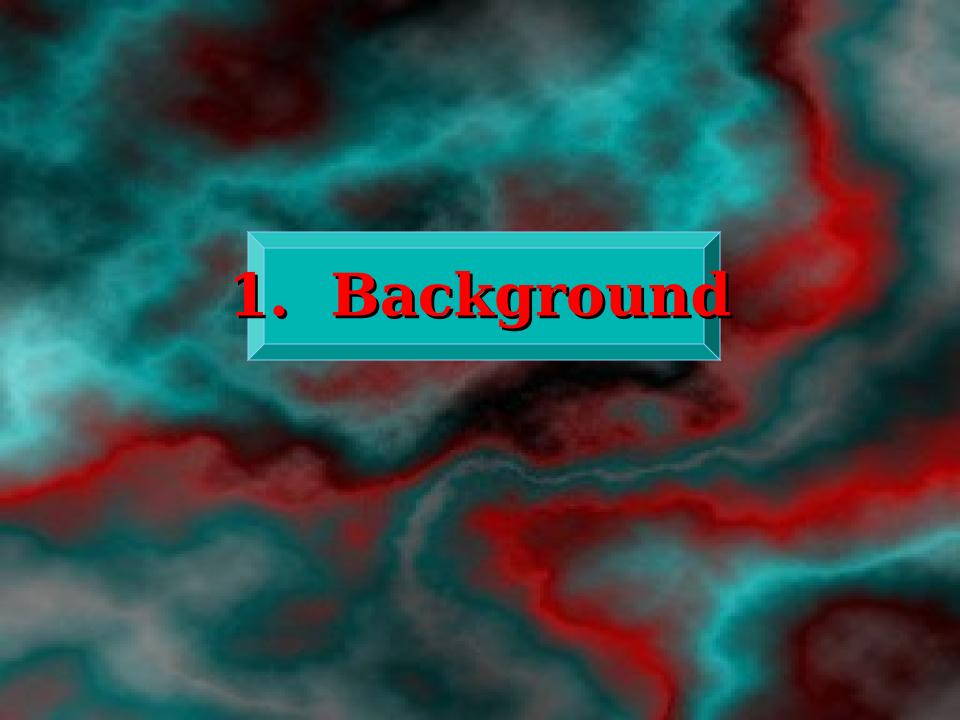
- Shut the voltage off BEFORE trying to give first aid or touch the victim
- If voltage can't be turned off, DO NOT touch victim until removed from conductor

Rescuing Shock Victims

- To remove victim from live conductor, use something NONCONDUCTIVE:
 - ⇒Board
 - Belt
 - Dry clothing
- Call for medical assistance
- Administer CPR if necessary
- All electric/electronic ratings mure receive CPR training







Purpose

- Provide method of preventing the operation of component, equipment, system when isolated or in abnormal condition
- Tags applied to valves, switches, or other operating devices to indicate restrictions (if any)

Purpose

- Tags used to indicate equipment status or condition (e.g. unreliability)
- PMS Maintenance Requirement Cards (MRC) may indicate tag-out requirements as part of maintenance action.

Equipment Tag-Out Bill

- Standardized procedures in OPNAVINST 3120.32 (series)
- Each ship must have tag-out bill or instruction and be in compliance

Tag-Out Elements

- Establishes tag-out log
- Assigns Authorizing Officer
- Designates use of tags, labels, forms
- Requires program audits & checks
- Requires training of all hands and program users



Commanding Officer

- Designates the Authorizing Officer
 - ⇒By billet or watch station
- May designate on-scene Authorizing Officer
 - For repetitive tag-outs associated with specific iterative tests or maintenance ons

Authorizing Officer

- Must be qualified and trained in tag-out program and procedures
- Ensures people assigned to make a tag-out are qualified and knowledgeable





- Red tag & string to attach to equipment
- Prohibits operation of equipment that could jeopardize personnel safety or damage equipment
- Under NO CIRCUMSTANCES will anyone operate equipment or remove tag except with authorization of ER assigned individuals.

OPERATION OF THIS EQUIPMENT WILL ENDANGER PERSONNEL OR HARM THE EQUPMENT. THIS EQUIPMENT SHALL NOT BE OPERATED UNTIL THIS TAG HA BEEN REMOVED BY AN AUTHORIZED

PERSON.

Caution Tag

Yellow tag & string to attach to equipment

SERIAL NO

Precautionary--provides temporary special instructions for operation

of equipmer

Not used if equipment

SYSTEM/COMPONENT IDENTIFICATION

DATE/TME

SIGNATURE OF PERSON ATTACHING TAG

SIGNATURE OF PERSON CHECKING TAC

CAUTION

DO NOT OPERATE THIS EQUIPMENT UNTIL SPECIAL INSTRUCTIONS ON REVERSE SIDE ARE THOROUGHLY UNDERSTOOD

SIGNATURE OF AUTHORIZING OFFICER

SIGNATURE OF REPARI ACTIVITY REPRESENTATIVE

NAVSHIPS **9890/5** (REV.3-70)(FRONT)

S/N 0103-lf-641-3001

Out of Calibration Label

- Orange peel & stick label
- Indicates inaccurate instrument
- Instrument may be used with extreme caution

OUT OF CALIBRATION

SERIAL NO.

DATE

AUTHORIZED BY

TAG BY

TIME

CORRECTION

Out of Commission Label

- Red peel & stick label
- Identifies instruments which incorrectly indicates parameters because of defects or are isolated from the system
- Indicates unreliable instrument--must be:
 - Repaired
 - Reconnected
 - Recalibrated





All Hands

- Only authorized & qualified personnel shall sign, hang, remove tags
- Personnel shall NEVER operate or energize tagged-out equipment unless authorized by CO
- Personnel shall report any equipment-if energized--that may cause injury or material damage & should be tagged out

Authorized Personnel

- Shall receive detailed training in tagout procedures
 - Detailed training accomplished annually

TAGOUT

- Shall demonstrate
 - Thorough knowledge of tag-out procedures
 - Use of tag-out log
 - Procedures for clearing tags